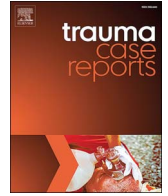


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Case report

Primary repair of a delayed presentation thoracic oesophageal gunshot injury: A report of two cases[☆]

Takeshi Omura^{a,b,*}, Mohammed Asieri^b, Kirsten Bischof^b, Sharan Rambarran^b,
Maeyane Stephens Moeng^b

^a Surgery Department, Tokushima Prefectural Central Hospital, Kuramotocho, 1-10-3, Tokushima-city, Tokushima, Japan

^b Trauma Unit, Department of Surgery, Charlotte Maxeke Johannesburg Academic Hospital, 17 Jubilee Road, Parktown, Johannesburg, Gauteng, South Africa

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ABSTRACT

Thoracic oesophageal gunshot injuries are uncommon, and the morbidity and mortality rates are extremely high and depend on the elapsed time, injury severity, and concomitant organ damage. Thus, early diagnosis is paramount to avoid delays, which in turn confer poorer outcomes. Current management strategies are still controversial and depend on the patient's physiologic state. We experienced two cases of thoracic oesophageal gunshot injury, both of whom were treated by primary repair and were successfully discharged. Decision-making strategies should be based on the patient's physiologic reserve, experience of the attending surgical team, and ancillary services available at the facility.

Case presentation

Case 1

A 21-year-old man with a gunshot wound to the left anterior chest wall (no exit wound) was brought to our emergency department (ED) by emergency medical services just over 4 h after injury. The patient was conscious and alert on arrival, and his vital signs were stable. Anteroposterior chest X-ray revealed that the bullet remained in the right chest wall, and right haemopneumothorax was treated using intercostal drainage (200 mL). The pulmonary contusion visualized by computed tomography angiography (CTA) revealed the bullet trajectory as a mediastinal traversing injury. Although we did not clearly observe a focal oesophageal wall defect, we noted the presence of peri-oesophageal gas (Fig. 1A/B). Oesophagoscopy showed full thickness perforation of the posterior oesophageal wall located 18–20 cm from the teeth; thus, emergency surgery was planned after a diagnosis of thoracic oesophageal injury. Approximately 12 h after injury, right thoracotomy was performed with the patient in the left lateral recumbent position. A lesion of 2 cm in diameter was detected in the oesophagus at the T2 level (Fig. 1C) and was treated with primary repair using a single-layer interrupted suture. While a small oesophageal leak settled, the patient was discharged after 2 months.

Case 2

A 31-year-old man with a gunshot wound with a trajectory from the left supraclavicular area to the right thorax was transferred to

[☆] Takeshi Omura, Mohammed Asieri, Kirsten Bischof, Sharan Rambarran, and Stephens Moeng declare that they have no conflict of interest.

* Corresponding author at: Sako, Yonbancho, 13-35-18, Tokushima-city, Tokushima, Japan.

E-mail address: omu@tph.gr.jp (T. Omura).

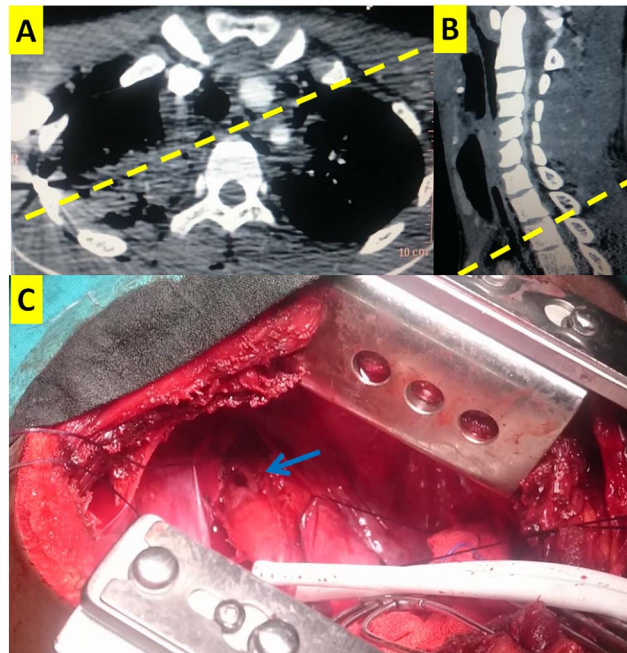


Fig. 1. A/B: the trajectory shows the bullet pass through upper thoracic oesophagus.
 C: one lesion (2 cm) was detected in the oesophagus at the T2 level.

our ED from a local primary healthcare facility. Bilateral intercostal drainage revealed 500 mL haemothorax in both chest bottles. In addition, massive air leakage was observed from the right intercostal drain. The patient was conscious and alert on arrival, and his vital signs were as follows: pulse, 149 beats/min; systolic blood pressure, 95 mm Hg; oxygen saturation, 88% with a 10 L/min flow

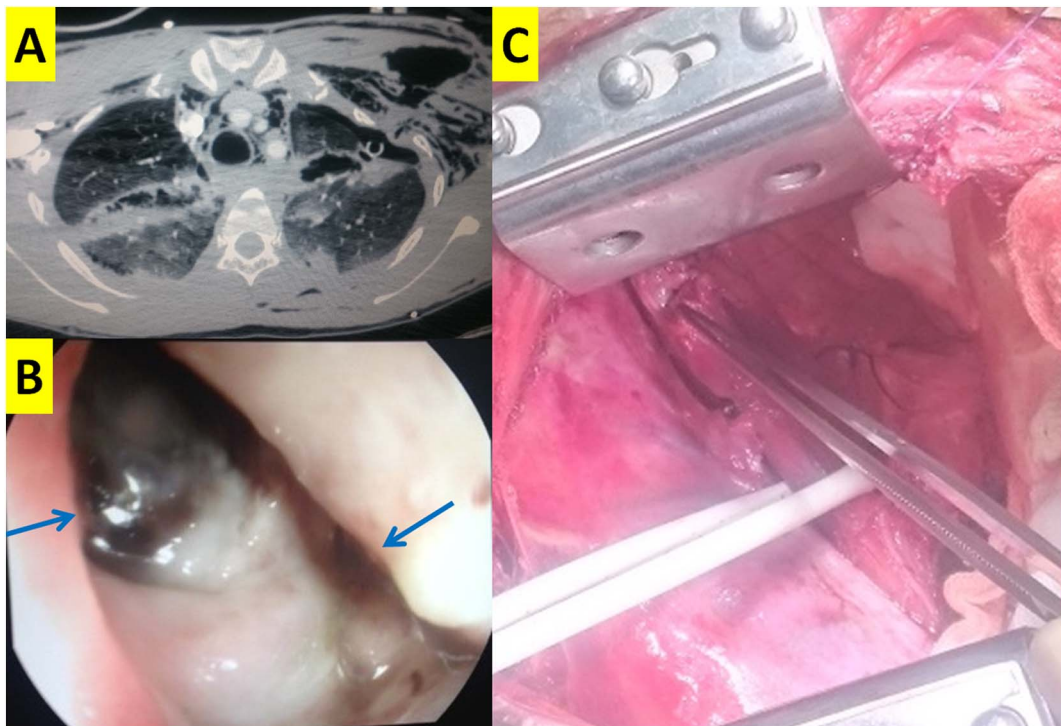


Fig. 2. A: the pulmonary contusion revealed the bullet trajectory.
 B: oesophagoscopy revealed a near-circumferential deep ulceration.
 C: a through-and-through injury was found in the oesophagus at the T4 level.

rate; and respiratory rate, 34 breaths/min. An endotracheal tube was immediately placed. Anteroposterior chest X-ray revealed bilateral haemopneumothorax and significant pulmonary contusions. CTA was performed after the patient was stabilized (Fig. 2A), showing peri-oesophageal gas, similar to the finding in the first patient. Oesophagoscopy revealed a near-circumferential deep ulceration that was located 20–22 cm from the teeth (Fig. 2B). An emergent surgery was arranged with a diagnosis of thoracic oesophageal injury. A right thoracotomy was performed at 36 h after injury. A through-and-through injury was found in the oesophagus at the T4 level (Fig. 2C), which was treated by primary repair using a single-layer interrupted suture. Although the patient later developed mediastinitis, after intensive care, he was transferred to the rehabilitation service 2 months after injury.

Discussion

Mortality in patients sustaining oesophageal injury is estimated to be approximately 20%, with the main cause being mediastinitis and related septic complications [1]. Complications are common and are often subdivided into those that are oesophageal related ranging between 38% and 66% [1] thus, every effort should be made for early and accurate diagnosis, followed by an expeditious and aggressive treatment.

The surgical decision depends on several factors and management of cases with delayed presentation is of particular concern. Although it is generally accepted that the classical tenet of performing primary repair when less than 24 h from perforation and avoiding primary repair when more than 24 h has been disproved [2], some authors recommend performing a primary repair in a single or two-layer with wide drainage, even after delayed diagnosis, this is the preferred management as it functional oesophagus and prevents the need for successive operation [3]. Time from injury to management was the only important risk factor for the development of oesophageal complications, but did not affect the length of ICU or hospital stay, incidence of non-oesophageal injury-related complications or death [4]. According to this, primary repair of a delayed presentation thoracic oesophageal gunshot injury should be acceptable. In both cases, we performed primary repair. Several studies have shown no significant differences between primary repair and other procedures in patients who were treated early after injury [4]. Our second patient was delayed for more than 24 h and he was unstable. Earlier studies have shown that the overall mortality rate in unstable patients is high (55%) and even more so in moribund patients who undergo an emergency thoracotomy (85%) [5]. For unstable patients, damage control is the strategy; in these cases, primary repair or oesophageal diversion should be followed by wide drainage. Appropriate resuscitation and extensive drainage at the time of surgery may be effective in such cases.

Conclusion

We present two cases of thoracic oesophageal gunshot injury, both of whom were treated by primary repair and were successfully discharged. Decision making strategies should be based on the patient's physiologic reserve, the experience of the attending surgical team and the ancillary services available at the facility.

Conflict of interest statement

None.

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